

value close to zero) indicates that the model explains the variation in the data poorly. By virtue of its higher adjusted R-squared value (0.78 compared to 0.50), the linear-logarithmic specification fits NFL Network contract data better than the linear model.⁹⁷

73. The model indicates that several factors collectively determine the price MVPDs pay for carriage of NFL Network programming. Table 10 presents the parameter estimates and related measures of statistical significance yielded by this analysis.

TABLE 10: OLS REGRESSION RESULTS

Variable	Coefficient	Std. Error	T-Statistic	P-Value
Ln(Subscribers)				
Contract Year				
Package				
MFN				
High Penetration				
Duration				
Y2005				
Y2006				
Y2007				
Constant				

Note: N = 39, adjusted R-squared = 0.95.

As Table 10 indicates, *Contract Year*, *Package*, *MFN*, *High Penetration*, and *Y2005* variables are statistically significant factors that affect the price that other (non-Comcast) MVPDs pay for carriage of NFL Network programming.⁹⁸ Despite the lack of statistical significance of the subscriber variable, I include this factor in my model because Comcast would likely argue that it deserves a lower price due to its size.⁹⁹ The model does a nice job explaining the variation in

97. Note that my plots and R-squared statistics are based on univariate regressions where the Net Effective Rate is a function of either (1) total MVPD NFL Network subscribers (the linear model) or (2) the natural log of the total MVPD NFL Network subscribers (the linear-logarithmic model).

98. Note that I judge statistical significance at the 10 percent level. Only five variables have p-values less than 0.1 (and are thus statistically significant at the 10 percent level); furthermore, two variables have a p-value of less than 0.01, meaning that they are also statistically significant at the 1 percent level.

99. I have, for example, evaluated the effect of various specification changes such as adding discrete variables for each MVPD. These changes generally result in predictions that are either (1) consistent with the results in Tables 10 and 11 or (2) produce significantly higher estimates of the price Comcast should pay for carriage of the

prices above and beyond the mean (simple average) price, with an adjusted R-squared value of 0.95.

74. I can apply the model parameters to Comcast's characteristics to determine the fair-market value that, absent the challenged conduct, Comcast would pay to carry NFL Network on its Expanded Basic tier. Table 11 presents the results for Comcast's Expanded Basic tier of service.¹⁰⁰

TABLE 11: PREDICTED COMCAST NET EFFECTIVE RATE ABSENT DISCRIMINATION FOR 2008

Tier	Net Effective Rate	95% Confidence Interval	
		Upper	Lower
Expanded Basic			

Because the predicted price is based on the rate that other MVPDs have voluntarily agreed to pay for carriage of NFL Network programming, this prediction represents a reasonable measure of the fair-market value that Comcast would have paid NFL Network absent Comcast's challenged conduct. Thus, this model predicts that Comcast would pay a NER of per subscriber per month to carry NFL Network on its Expanded Basic tier in 2008. In keeping with standard statistical approaches, the prediction model also provides a range of possible Comcast NER values. This "confidence interval" demonstrates that the appropriate NER that Comcast would pay for carriage of NFL Network programming on its Expanded Basic tier in 2008 is almost certainly between and per subscriber per month.¹⁰¹ The model predicts

NFL Network on its Expanded Basic tier. I have also evaluated a fixed effects model, which produces a confidence range that includes the prediction I present in Table 11. The fixed effects model considers only 32 observations from the sample (in part due to the nature of the sample) and thus does not provide the same predictive power that model [1] provides when estimated using OLS.

100. The predicted prices are based on the following parameter values for Comcast in 2008:

101. A confidence interval is a statistically derived range that provides a measure of the reliability of a particular point estimate. In applied economics, a 95 percent confidence interval is considered to have a very high degree of reliability.

that the parties would not likely agree to any value above or below this range in an arms-length transaction absent the challenged conduct.

75. To project the fair-market value of carriage of NFL Network on Comcast's Expanded Basic tier for the years 2009-12, I apply the subscriber-weighted year-over-year (YoY) growth rate of the NERs for the MVPDs in my sample that have contractual rates for any year between 2009 and 2012 and that, like Comcast, carry the eight-game package.¹⁰² Table 12 shows the average annual NERs used to calculate the projected Comcast rate for the period 2009-2012.

TABLE 12: SELECT MVPD ANNUAL NERs 2009-2012

2008
2009
2010
2011
2012

Source: NFL Network contracts; Empiris calculations.

Note that the MVPDs listed in Table 12 have substantially different numbers of NFL Network subscribers. To account for this variation when I calculate the annual YoY NER growth rate, I weight each MVPD's NERs by its 2008 NFL Network subscribership. I calculate the average subscriber-weighted year-over-year change by selecting the appropriate sample for each year. Thus, for example, the 2009 year-over-year NER growth rate is calculated as the subscriber-weighted change in NERs for each MVPD in Table 12 because each MVPD has a carriage contract for both 2008 and 2009. In contrast, the YoY NER growth rate for 2011 is calculated as the subscriber-weighted average increase from 2010 to 2011. This value can only be calculated

102.

using data for the MVPDs that have an established NER for carrying eight-game package programming in both years. Table 13 presents my estimated year-over-year NER growth rates and projects the appropriate Comcast rate for each year from 2009-2012.

TABLE 13: PROJECTED COMCAST NERS, 2008-2012	
Year-over-Year (YoY) Growth Rate	Projected Comcast NER
2008	
2009	
2010	
2011	
2012	

Note: 2008 is the base year; thus the first computed growth rate is that from 2008 to 2009.

Table 13 can be used to extend the predicted rate out to 2012.

C. The Reliability of the Fair-Market Value Range Derived from Analysis of the Fair-Market Rates Paid by Other MVPDs Is Confirmed by Comcast's Actual Contract Rate and by Internal Comcast Valuations

76. Comcast valuations support the reliability of my estimate of the fair-market value of NFL Network programming carried on Comcast's Expanded Basic tier. First, my estimate is supported by the price Comcast actually agreed to pay pursuant to the affiliation agreement.

. I examine each valuation below.

1. The Price Estimate Is Confirmed by Comcast's Actual Agreement for Carriage of NFL Network Programming

77. As noted above, the results of the analysis above are corroborated by the contract that currently governs Comcast's carriage of NFL Network programming.

78. The existing contract informs the per subscriber per month rates that Comcast committed to paying NFL Network for all of NFL Network's programming, including the regular-season NFL games. As noted above,

rate. ∴ Table 14 summarizes the
to pay : that Comcast committed

103.

104.

105.

106.

TABLE 14: 2008 COMCAST AFFILIATE RATES AS STIPULATED BY THE NFL-COMCAST AGREEMENT

Sources:

*Notes: **

** Information on Comcast's subscriber counts is not publicly available. Comcast's 2008 Expanded Basic subscribers are derived from Internal NFL Network documents (so-called "remittance reports") for 2007. Because such 2008 data were unavailable, I assume that Comcast's Expanded Basic subscribership grew at the same annual rate between June 2007 and 2008 as it did between September 2006 and June 2007. Comcast's 2008 D2 subscribers are based on an estimate provided by Frank Hawkins. See Declaration of Frank Hawkins, May 2, 2008, ¶ 4 ("My understanding is that the "D2" tier is available to approximately 8.6 million Comcast subscribers who receive digital television service.").

*** The "Base" Fee is equal to the adjusted base payment per month divided by the total in-tier subscribers.

†

As Table 14 demonstrates, Comcast committed to pay

79. As noted in Section II.A, the NER is the most comprehensive measure of the carriage fee paid by an MVPD to NFL Network. The Affiliation Agreement also informs the NER that Comcast would have paid for carriage of NFL Network programming on its Expanded Basic or D2 tiers.

Table 15 presents the NER that Comcast would pay for carriage of NFL Network programming under the existing Affiliation Agreement.

TABLE 15: 2008 COMCAST NERS AS STIPULATED BY THE AFFILIATION AGREEMENT

Source: Internal NFL Network Documents; Empiris Calculations.

Note: Numbers may not sum due to rounding.

80. Comcast and NFL Network had thus agreed to a contract, with NERs as set out in Table 15, *before* Comcast initiated the challenged conduct of placing NFL Network on a tier less-penetrated than the tier on which Comcast placed its affiliated sports networks (Versus/OLN, and the Golf Channel). (As noted earlier, Comcast carries both Versus and the Golf Channel on its Expanded Basic tier.).

2. The Price Estimate Is Consistent With Valuations Reflected in Comcast's Internal Documents

81. Internal Comcast analyses also corroborate the predicted price that Comcast should pay for carriage of the NFL Network programming according to my regression model.

CONCLUSION

82. Comcast discriminated against NFL Network on the basis of affiliation by placing it on a less-penetrated tier than Comcast's affiliated national sports networks, the Golf Channel and Versus. Comcast did so even though ratings data show that NFL Network is more widely watched—and thus more popular—than Comcast's affiliated networks. This analysis demonstrates that, whether for "total day," "prime time," or for particular programs, NFL Network is more popular than either of the Comcast-affiliated national sports networks. My analysis also indicates that NFL programming enjoys substantial "out-of-market" popularity in cities other than those of the competing teams. These findings refute any suggestion that Comcast's refusal to carry NFL Network on Comcast's Expanded Basic tier was justified based on relative popularity.

83. An analysis of what comparable MVPDs pay for carriage of NFL Network programming indicates that the fair-market value of carriage of NFL Network programming on Comcast's Expanded Basic tier in 2008 is approximately [REDACTED] and almost certainly between [REDACTED] and [REDACTED]. This prediction is corroborated by what Comcast actually agreed to pay NFL Network if Comcast carried the network on [REDACTED]

107.

See also Table 15, *supra*.

∴ These findings further refute any suggestion that Comcast's decision to carry NFL Network on its premium sports tier was justified by cost concerns; the prices also indicate the appropriate price for carriage that should be ordered by the FCC.

84. Using the year-over-year average growth rate of the NERs of all MVPDs in my sample that carry equivalent programming, I project Comcast's rate for the period 2009-12. I estimate that Comcast should pay an NER ranging from _____ per subscriber per month in 2008 to _____ per subscriber per month in 2012 for carriage of NFL Network on Comcast's Expanded Basic tier.

* * *

I reserve the right to supplement my above-described opinions based on any documents (including but not limited to expert reports and documents responsive to Enterprises' document requests) produced by Comcast that were received, or will be received, too late to be analyzed in time for this report.

* * *

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.


Hal J. Singer

March 6, 2009

EMPIRIS, L.L.C.

APPENDIX 1: CURRICULUM VITAE

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EDUCATION

THE JOHNS HOPKINS UNIVERSITY, Ph.D., 1999; M.A. (Economics), 1996.

TULANE UNIVERSITY, B.S. *magna cum laude* (Economics), 1994. Dean's Honor Scholar (full academic scholarship). Senior Scholar Prize in Economics, 1994.

CURRENT EMPLOYMENT

EMPIRIS, L.L.C., Washington, D.C.: Managing Partner and President, 2008-present.

EMPLOYMENT HISTORY

CRITERION ECONOMICS, L.L.C., Washington, D.C.: President, 2004-2008. Senior Vice President, 1999-2004.

LECG, INC., WASHINGTON, D.C.: Senior Economist, 1998-99.

U.S. SECURITIES AND EXCHANGE COMMISSION, OFFICE OF ECONOMIC ANALYSIS, WASHINGTON, D.C.: Staff Economist, 1997-98.

THE JOHNS HOPKINS UNIVERSITY, ECONOMICS DEPARTMENT, BALTIMORE: Teaching Assistant, 1996-98.

AUTHORED BOOKS AND BOOK CHAPTERS

Valuing Life Settlements as a Real Option, co-authored with Joseph R. Mason, in *LONGEVITY TRADING AND LIFE SETTLEMENTS* (Vishaal Bhuyan ed., John Wiley & Sons 2009).

An Antitrust Analysis of the World Trade Organization's Decision in the U.S.-Mexico Arbitration on Telecommunications Services, co-authored with J. Gregory Sidak, in *HANDBOOK OF TRANS-ATLANTIC ANTITRUST* (Philip Marsden, ed. Edward Elgar 2006).

BROADBAND IN EUROPE: HOW BRUSSELS CAN WIRE THE INFORMATION SOCIETY, co-authored with Dan Maldoom, Richard Marsden, and J. Gregory Sidak (Kluwer/Springer Press 2005).

Are Vertically Integrated DSL Providers Squeezing Unaffiliated ISPs (and Should We Care)?, co-authored with Robert W. Crandall, in *ACCESS PRICING: THEORY, PRACTICE AND EMPIRICAL EVIDENCE* (Justus Haucap and Ralf Dewenter eds., Elsevier Press 2005).

JOURNAL ARTICLES

EMPIRIS, L.L.C.

1. *Evaluating Market Power with Two-Sided Demand and Preemptive Offers to Dissipate Monopoly Rent: Lessons for High-Technology Industries from the Antitrust Division's Approval of the XM-Sirius Satellite Radio Merger*, 4 JOURNAL OF COMPETITION LAW & ECONOMICS (forthcoming 2008), co-authored with J. Gregory Sidak.
2. *Assessing Bias in Patent Infringement Cases: A Review of International Trade Commission Decisions*, 21 HARVARD JOURNAL OF LAW AND TECHNOLOGY (2008), co-authored with Robert W. Hahn.
3. *The Effect of Incumbent Bidding in Set-Aside Auctions: An Analysis of Prices in the Closed and Open Segments of FCC Auction 35*, 32 TELECOMMUNICATIONS POLICY JOURNAL (2008), co-authored with Peter Cramton and Allan Ingraham.
4. *A Real-Option Approach to Valuing Life Settlement Transactions*, 23 JOURNAL OF FINANCIAL TRANSFORMATION (Aug. 2008), co-authored with Joseph R. Mason.
5. *The Economics of Wireless Net Neutrality*, 3 JOURNAL OF COMPETITION LAW AND ECONOMICS 399 (2007), co-authored with Robert W. Hahn and Robert E. Litan.
6. *Vertical Foreclosure in Video Programming Markets: Implication for Cable Operators*, 3 REVIEW OF NETWORK ECONOMICS 348 (2007), co-authored with J. Gregory Sidak.
7. *The Unintended Consequences of Net Neutrality*, 5 JOURNAL ON TELECOMMUNICATIONS AND HIGH TECH LAW 533 (2007), co-authored with Robert E. Litan.
8. *Does Video Delivered Over a Telephone Network Require a Cable Franchise?*, 59 FEDERAL COMMUNICATIONS LAW JOURNAL 251 (2007), co-authored with Robert W. Crandall and J. Gregory Sidak.
9. *The Competitive Effects of a Cable Television Operator's Refusal to Carry DSL Advertising*, 2 JOURNAL OF COMPETITION LAW AND ECONOMICS 301 (2006).
10. *Overregulation without Economics: The World Trade Organization's Decision in the U.S.-Mexico Arbitration on Telecommunications Services*, 57 FEDERAL COMMUNICATIONS LAW JOURNAL 1 (2004), co-authored with J. Gregory Sidak.
11. *The Secondary Market for Life Insurance Policies: Uncovering Life Insurance's "Hidden" Value*, 6 MARQUETTE ELDER'S ADVISOR 95 (2004), co-authored with Neil A. Doherty and Brian A. O'Dea.
12. *Do Unbundling Policies Discourage CLEC Facilities-Based Investment?*, 4 TOPICS IN ECONOMIC ANALYSIS AND POLICY (2004), co-authored with Robert W. Crandall and Allan T. Ingraham.
13. *Foreign Investment Restrictions as Industrial Policy*, 3 CANADIAN JOURNAL OF LAW AND TECHNOLOGY 19 (2004), co-authored with Robert W. Crandall.
14. *Regulating the Secondary Market for Life Insurance Policies*, 21 JOURNAL OF INSURANCE REGULATION 63 (2003), co-authored with Neil A. Doherty.
15. *Interim Pricing of Local Loop Unbundling in Ireland: Epilogue*, 4 JOURNAL OF NETWORK INDUSTRIES 119 (2003), co-authored with J. Gregory Sidak.
16. *The Benefits of a Secondary Market for Life Insurance*, 38 REAL PROPERTY, PROBATE AND TRUST JOURNAL 449 (2003), co-authored with Neil A. Doherty.
17. *The Empirical Case Against Asymmetric Regulation of Broadband Internet Access*, 17 BERKELEY TECHNOLOGY LAW JOURNAL 954 (2002), co-authored with Robert W. Crandall and J. Gregory Sidak.
18. *How Can Regulators Set Nonarbitrary Interim Rates? The Case of Local Loop Unbundling in Ireland*, 3 JOURNAL OF NETWORK INDUSTRIES 273 (2002), co-authored with J. Gregory Sidak.
19. *Vertical Foreclosure in Broadband Access*, 49 JOURNAL OF INDUSTRIAL ECONOMICS (2001) 299, co-authored with Daniel L. Rubinfeld.

20. *Open Access to Broadband Networks: A Case Study of the AOL/Time Warner Merger*, 16 BERKELEY TECHNOLOGY LAW JOURNAL 640 (2001), co-authored with Daniel L. Rubinfeld.
21. *Cable Modems and DSL: Broadband Internet Access for Residential Customers*, 91 AMERICAN ECONOMICS ASSOCIATION PAPERS AND PROCEEDINGS 302 (2001), co-authored with Jerry A. Hausman and J. Gregory Sidak.
22. *Residential Demand for Broadband Telecommunications and Consumer Access to Unaffiliated Internet Content Providers*, 18 YALE JOURNAL ON REGULATION 1 (2001), co-authored with Jerry A. Hausman and J. Gregory Sidak.
23. *Determining the Source of Inter-License Synergies in Two-Way Paging Networks*, 18 JOURNAL OF REGULATORY ECONOMICS 59 (2000).
24. *A General Framework for Competitive Analysis in the Wireless Industry*, 50 HASTINGS LAW REVIEW 1639 (2000), co-authored with J. Gregory Sidak and David Teece.
25. *Capital Raising in Offshore Markets*, 23 JOURNAL OF BUSINESS AND FINANCE 1181 (1999), co-authored with Ian Gray and Reena Aggarwal.

EXPERT TESTIMONY SINCE 2005

1. In the Matter of Distribution of the 2000-03 Copyright Royalty Funds, Dkt. No. 2008-2 CRB CD 2000-03 (Copyright Royalty Judges).
2. Cindy Johnson et al. v. Arizona Hospital and Health Care Association et al., Case No. 07-01292 (SRB) (D. Az.).
3. Southeast Missouri Hospital et al. v. C.R. Bard, Inc., Case No. 1:07CV0031 TCM (E.D. Mo.).
4. TCR Sports Broadcasting Holding, L.L.P. v. Comcast Corporation, File No. CSR-8001-P (Federal Communications Commission).
5. Meijer, Inc. & Meijer Distribution, Inc. et al. v. Abbott Laboratories, Case No. C 07-5985 CW (N.D. Ca.).
6. NFL Enterprises LLC. v. Comcast Cable Communications, LLC, Federal Communications Commission, File No. CSR-7876-P (Federal Communications Commission).
7. Medical Mutual of Ohio Inc. v. GlaxoSmithKline PLC, and SmithKline Beecham Corporation, Civil Action No. 05-396 (E.D. Pa.).
8. TCR Sports Broadcasting Holding, L.L.P., D/B/A Mid-Atlantic Sports Network v. Time Warner Cable Inc., American Arbitration Association, Case No. 12 494 E 000326 07 (Federal Communications Commission).
9. Coors Brewing Company v. Hipal Partners Ltd., Case No. 71 155 00358 07 (American Arbitration Association).
10. Natchitoches Parish Hosp. Serv. Dist. v. Tyco Int'l, Ltd. et al. (D. Mass.).
11. Ralph O. Stalsberg, et al. v. New York Life Insurance Company, New York Life Insurance and Annuity Corporation, Case No. 2:07-Cv-29-Bj (D. Utah).
12. *In Re Tricor Indirect Purchaser Antitrust Litigation*, C.A. No. 05-360 (KAJ) (D. Del.).

COMMISSIONED WHITE PAPERS

1. Economic Effects of Tax Incentives for Broadband Infrastructure Deployment (prepared for the Fiber to the Home Council), co-authored with Jeffrey Eisenach and Jeffrey West (Dec. 23, 2008).
2. The Effect of Brokered Deposits and Asset Growth on the Likelihood of Failure (prepared for Morgan Stanley, Citigroup, and UBS), co-authored with Joseph Mason and Jeffrey West (Dec. 17, 2008).
3. Estimating the Benefits and Costs of M2Z's Proposal: Reply to Wilkie's *Spectrum Auctions Are Not A Panacea* (prepared for CTIA), co-authored with Robert W. Hahn, Allan T. Ingraham and J. Gregory Sidak (July 23, 2008).
4. Is Greater Price Transparency Needed in The Medical Device Industry? (prepared for Advanced Medical Technology Association), co-authored with Robert W. Hahn (Nov. 30, 2007).
5. Should the FCC Depart from More than a Decade of Market-Oriented Spectrum Policy? Reply to Skrzypacz and Wilson (prepared for CTIA), co-authored with Gerald Faulhaber and Robert W. Hahn (Jun. 18, 2007).
6. Improving Public Safety Communications: An Analysis of Alternative Approaches (prepared for the Consumer Electronics Association and the High Tech DTV Coalition), co-authored with Peter Cramton, Thomas S. Dombrowsky, Jr., Jeffrey A. Eisenach, and Allan Ingraham (Feb. 6, 2007).
7. The Budgetary Impact of Eliminating the GPOs' Safe Harbor Exemption from the Anti-Kickback Statute of the Social Security Act (prepared for the Medical Device Manufacturers Association) (Dec. 20, 2005).
8. Reply to "The Life Settlements Market: An Actuarial Perspective on Consumer Economic Value" (prepared for Coventry First), co-authored with Eric Stallard (Nov. 15, 2005).
9. The Competitive Effects of Telephone Entry into Video Markets (prepared for the Internet Innovation Alliance), co-authored with Robert W. Crandall and J. Gregory Sidak (Nov. 9, 2005).
10. How Do Consumers and the Auto Industry Respond to Changes in Exhaust Emission and Fuel Economy Standards? A Critique of Burke, Abeles, and Chen (prepared for General Motors Corp.), co-authored with Robert W. Crandall and Allan T. Ingraham (Sept. 21, 2004).
11. Inter-City Competition for Retail Trade in North Texas: Can a TIF Generate Incremental Tax Receipts for the City of Dallas? (prepared for Harvest Partners), co-authored with Thomas G. Thibodeau and Allan T. Ingraham (July 16, 2004).
12. An Accurate Scorecard of the Telecommunications Act of 1996: Rejoinder to the Phoenix Center Study No. 7 (prepared for BellSouth), co-authored with Robert Crandall (Jan. 6, 2004).
13. Competition in Broadband Provision and Implications for Regulatory Policy (prepared for the Alcatel, British Telecom, Deutsche Telekom, Ericsson, France Telecom, Siemens, Telefónica de España, and Telecom Italia), co-authored with Dan Maldoom, Richard Marsden, and Gregory Sidak (Oct. 15, 2003).
14. The Effect of Ubiquitous Broadband Adoption on Investment, Jobs, and the U.S. Economy (prepared for Verizon), co-authored with Robert W. Crandall (Sept. 17, 2003).
15. The Deleterious Effect of Extending the Unbundling Regime on Telecommunications Investment (prepared for BellSouth), co-authored with Robert W. Crandall (July 10, 2003).
16. Letter Concerning Spectrum Auction 35 to the Honorable Michael K. Powell, Chairman, Federal Communications Commission, from Peter C. Cramton, Robert W. Crandall, Robert W. Hahn, Robert G. Harris, Jerry A. Hausman, Thomas W. Hazlett, Douglas G. Lichtman, Paul W. MacAvoy, Paul R. Milgrom, Richard Schmalensee, J. Gregory Sidak, Hal J. Singer, Vernon L. Smith, William Taylor, and David J. Teece (Aug. 16, 2002).

WORKING PAPERS

1. *What Does an Economist Have to Say About the Calculation of Reasonable Royalties?*, presented at Law Seminars International Standard Setting and Patent Pools Conference, co-authored with Kyle Smith (Sept. 2008).
2. *Irrational Expectations: Can a Regulator Credibly Commit to Removing an Unbundling Obligation?*, AEI-Brookings Joint Center Related Publication No. 07-28, co-authored with Jeffrey A. Eisenach (Dec. 2007).
3. *An Antitrust Analysis of Google's Proposed Acquisition of DoubleClick*, AEI-Brookings Joint Center Related Publication No. 07-24, co-authored with Robert W. Hahn (Sept. 2007).
4. *Inter-City Competition for Retail Trade in North Texas: Can a TIF Generate Incremental Tax Receipts for the City of Dallas?*, co-authored with Thomas G. Thibodeau and Allan T. Ingraham (revise and resubmit to JOURNAL OF REAL ESTATE RESEARCH) (July 16, 2004).
5. *An Economic Assessment of the Weight-Based CAFE Standard Proposed by the National Highway Traffic Safety Administration*, co-authored with Robert W. Crandall and Allan T. Ingraham (Apr. 2004).
6. *How Common Are "Conflicts of Interests" in the Investment Banking Industry?*, co-authored with Charles W. Calomiris (Dec. 2003).
7. *Does Clustering by Incumbent MSOs Deter Entry by Overbuilders?* (July 2002).

SPEAKING ENGAGEMENTS

1. *Markets and Regulation: How Do We Best Serve Customers?*, Wireless U. Communications Policy Seminar, UNIVERSITY OF FLORIDA PUBLIC UTILITY RESEARCH CENTER, Tampa, FL., Nov. 13, 2008.
2. *The Price Of Medical Technology: Are We Getting What We Pay For?* HEALTH AFFAIRS BRIEFING, Washington, D.C., Nov. 10, 2008.
3. *Standard Setting and Patent Pools*, LAW SEMINARS INTERNATIONAL, Arlington, VA., Oct. 3, 2008.
4. *The Changing Structure of the Telecommunications Industry and the New Role of Regulation*, INTERNATIONAL TELECOMMUNICATIONS SOCIETY BIENNIAL CONFERENCE, Montreal, Canada, June 26, 2008.
5. *The Debate Over Network Management: An Economic Perspective*, AMERICAN ENTERPRISE INSTITUTE CENTER FOR REGULATORY AND MARKET STUDIES, Washington, D.C., Apr. 2, 2008.
6. *Merger Policy in High-Tech Industries*, GEORGE MASON UNIVERSITY SCHOOL OF LAW, Washington, D.C., Feb. 1, 2008.
7. *Telecommunications Symposium*, U.S. DEPARTMENT OF JUSTICE ANTITRUST DIVISION, Washington, D.C., Nov. 29, 2007.
8. *Wireless Practice Luncheon*, FEDERAL COMMUNICATIONS BAR ASSOCIATION, Washington, D.C., Nov. 29, 2007.
9. *Association for Computing Machinery's Net Neutrality Symposium*, GEORGE WASHINGTON UNIVERSITY, Washington, D.C., Nov. 12, 2007.
10. *Regulators' AdvanceComm Summit*, NEW YORK LAW SCHOOL, New York, N.Y., Oct. 14, 2007.
11. *Annual Conference*, CAPACITY USA 2007, New York, N.Y., Jun. 26, 2007.
12. *William Pitt Debating Union*, UNIVERSITY OF PITTSBURGH, SCHOOL OF ARTS & SCIENCES, Pittsburgh, PA., Feb. 23, 2007.

13. *Annual Conference*, WIRELESS COMMUNICATIONS ASSOCIATION INTERNATIONAL, Washington, D.C., June 27, 2006.
14. *Annual Conference*, MEDICAL DEVICE MANUFACTURERS ASSOCIATION, Washington, D.C., June 14, 2006.
15. *Annual Conference*, ASSOCIATION FOR ADVANCED LIFE UNDERWRITING, Washington, D.C., May 1, 2006.
16. *Entrepreneur Lecture Series*, LAFAYETTE COLLEGE, Easton, PA., Nov. 14, 2005.

EDITORIALS AND MAGAZINE ARTICLES

1. *Is Greater Price Transparency Needed in the Medical Device Industry?*, HEALTH AFFAIRS (forthcoming 2008), co-authored with Robert W. Hahn and Keith Klovers.
2. *Foxes in the Henhouse: FCC Regulation through Merger Review*, MILKEN INSTITUTE REVIEW (First Quarter 2008), co-authored with J. Gregory Sidak.
3. *Don't Drink the CAFE Kool-Aid*, WALL STREET JOURNAL, Sept. 6, 2007, at A17, co-authored with Robert W. Crandall.
4. *The Knee-Jerk Reaction: Misunderstanding the XM/Sirius Merger*, WASHINGTON TIMES, Aug. 24, 2007, at A19, co-authored with J. Gregory Sidak.
5. *Net Neutrality: A Radical Form of Non-Discrimination*, REGULATION, Summer 2007.
6. *Telecom Time Warp*, WALL STREET JOURNAL, July 11, 2007, at A15, co-authored with Robert W. Crandall.
7. *Earmarked Airwaves*, WASHINGTON POST, June 27, 2007, at A19, co-authored with Robert W. Hahn.
8. *Not Neutrality*, NATIONAL POST, Mar. 29, 2007, at FP19.
9. *Should ATM Fees Be Regulated?*, NATIONAL POST, Mar. 8, 2007, at FP17, co-authored with Robert W. Crandall.
10. *Life Support for ISPs*, REGULATION, Fall 2005, co-authored with Robert W. Crandall.
11. *No Two-Tier Telecommunications*, NATIONAL POST, Mar. 7, 2003, at FP15, co-authored with Robert W. Crandall.

MEMBERSHIPS

American Economics Association

REVIEWER

JOURNAL OF COMPETITION LAW AND ECONOMICS

JOURNAL OF RISK MANAGEMENT AND INSURANCE REVIEW

JOURNAL OF REGULATORY ECONOMICS

MANAGERIAL AND DECISION ECONOMICS

TELECOMMUNICATIONS POLICY

EMPIRIS, L.L.C.

PERSONAL INFORMATION

American citizen, born March 31, 1972. Married to Ingrid Arraut Singer. Two daughters: Alexis and Kayla. Resident of Oakton, Virginia.

February 11, 2009

EMPIRIS, L.L.C.

APPENDIX 2: MATERIALS RELIED UPON

Academic Literature

PHILLIP AREEDA, IX ANTITRUST LAW (Aspen 1991).

Johan Arndt & Julian L. Simon, *Advertising and Economics of Scale: Critical Comments on the Evidence*, 32 J. IND. ECON. 229 (1983).

Wilko Bolt & Alexander F. Tieman, *Social Welfare and Cost Recovery in Two-Sided Markets*, IMF Working Paper WP/05/194 (2005).

ROBERT H. BORK, THE ANTITRUST PARADOX (Free Press 1978).

Dennis W. Carlton, *A General Analysis of Exclusionary Conduct and Refusal to Deal—Why Aspen and Kodak Are Misguided*, 68 ANTITRUST L. J. 659 (2001)

Howard Chang, David S. Evans, & Daniel D. Garcia Swartz, *The Effect of Regulatory Intervention in Two-Sided Markets: An Assessment of Interchange-Fee Capping in Australia*, 4 REV. NETWORK ECON. 328 (2005).

Yeon-Koo Che, *Customer Return Policies for Experience Goods*, 44 J. IND. ECON. 17 (1996).

Einer Elhauge, *Defining Better Monopolization Standards*, 56 STANFORD L. REV. 253 (2003)

Douglas Gale & Robert Rosenthal, *Price and Quality Cycles for Experience Goods*, 25 RAND J. ECON. 590 (1994).

Claus Thustrup Hansen & Søren Kyhl, *Pay-per-view Broadcasting of Outstanding Events: Consequences of a Ban*, 19 INT'L J. IND. ORG. 589 (2001).

Thomas Hazlett, *Shedding Tiers For A La Carte? An Economic Analysis Of Cable TV Pricing*, George Mason University School Of Law Working Paper (2006).

James E. Hodder & Yael A. Ilan, *Declining Prices and Optimality When Costs Follow an Experience Curve*, 7 MANAGERIAL & DECISION ECON. 229 (1986)

HERBERT HOVENKAMP, XI ANTITRUST LAW.

George G. Judge et al, THE THEORY AND PRACTICE OF ECONOMETRICS (Wiley and Sons 2d ed. 1985).

Michael L. Katz & Carl Shapiro, *Systems Competition and Network Effects*, 8 J. ECON. PERSP. 93 (1994)

Krattenmaker, Thomas G. and Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price*, 96 YALE L. J. 209 (1986).

Philip Nelson, *Information and Consumer Behavior*, 78 J. POL. ECON. 311 (1970).

Michael Porter, *Interbrand Choice, Media Mix and Market Performance*, 66 AM. ECON. REV. 398 (1976).

Jean Charles Rochet & Jean Tirole, *Platform Competition in Two-Sided Markets*, 1 J. EURO. ECON. ASS'N. 990 (2003).

Sherwin Rosen, *Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition*, 82 J. POL. ECON. 34 (1974).

Stephen C. Salop & David T. Scheffman, *Raising Rivals' Costs*, 73 AM. ECON. REV. 267 (1983)

Hal J. Singer, *The Competitive Effects of a Cable Television Operator's Refusal to Carry DSL Advertising*, 2 J. COMP. L. & ECON. 301 (2006).

Hal J. Singer & J. Gregory Sidak, *Vertical Foreclosure in Video Programming Markets: Implications for Cable Operators*, 6 REV. NETWORK ECON. (2007).

Carl Shapiro, *Optimal Pricing of Experience Goods*, 14 BELL J. ECON. 497 (1983).

JAMES H. STOCK & MARK W. WATSON, INTRODUCTION TO ECONOMETRICS (Addison-Wesley 2003).

JEFFREY M. WOOLDRIDGE, INTRODUCTORY ECONOMETRICS: A MODERN APPROACH (South-Western Cengage Learning 4th ed. 2009).

Michael Whinston, *Tying, Foreclosure and Exclusion*, 80 AM. ECON. REV. 837 (1990).

Case Materials

Declaration of Frank Hawkins, May 2, 2008.

In the Matter of NFL Enterprises LLC v. Comcast Cable Communications LLC, File No. CSR-7876-P, Answer of Comcast Cable Communications, LLC, June 20, 2008.

Various MVPD-NFL Network Affiliation Agreements, various dates.

Various Affiliate Remittance Reports, various dates.

Data

Arianna – Household Data, NIELSEN (2009).

Galaxy Explorer (minimum 25 minute show ratings), NIELSEN (2009).

National People Meter – Household Live and Same-Day Coverage Rating, NIELSEN (2009).

NFL Subscriber Report by MSO (Top 10 MSOs), NFL NETWORK (2009).

Overnight DMA Household Ratings, NIELSEN (2009).

Government Reports

Department of Justice, Voice, Video and Broadband: The Changing Competitive Landscape and Its Impact on Consumers, Nov. 17, 2008.

In the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, MB Dkt. No. 06-189, Thirteenth Annual Report, released Jan. 16, 2009.

In the Matter of Applications for Consent to the Assignment and/or Transfer of Control of Licenses, MB Dkt. No. 05-192, Memorandum Opinion and Order, released July 21, 2006.

In the Matter of 2002 Biennial Regulatory Review – Review of the Commission’s Broadcast Ownership Rules and Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996, MB Dkt. No. 02-277, Report and Order and Notice of Proposed Rulemaking, (released July 2, 2003).

U.S. General Accounting Office, Statement of Mark L. Goldstein, Director, Before the U.S. Senate Committee on Commerce, Science, and Transportation, Subscriber Rates and Competition in the Cable Television Industry, Mar. 25, 2004.

Laws and Regulations

47 C.F.R § 76.1302(c).

Legal Documents

In the Matter of TCR Sports Broadcasting Holding, L.L.P., Complainant v. Comcast Corporation, Defendant, Complaint, filed July 1, 2008.

In the Matter of TCR Sports Broadcasting Holding, L.L.P., Complainant v. Time Warner, Defendant, Order on Review, Oct. 30, 2008.

In the Matter of General Motors Corporation and Hughes Electronics Corporation, Transferors, and The News Corporation Limited, Transferee, For Authority to Transfer Control, Memorandum Opinion and Order, MB Dkt. No. 03-124, released Jan. 14, 2004.

NFL Enterprises LLC vs. Comcast Cable Communications, LLC, Amended Complaint, No. 603469-06 (N.Y. Sup. Ct.).

NFL Enterprises LLC vs. Comcast Cable Communications, LLC, Memorandum Opinion and Hearing Designation Order, File No. CSR-7876-P, Oct. 10, 2008.

TCR Sports Broadcasting Holding, L.L.P., d/b/a Mid-Atlantic Sports Network v. Time Warner Cable Inc., Case No: 71-472-E-00697-07, Arbitrator’s Decision, June 2, 2008.

Press Material

Kurt Badenhausen, *Full-Court Press; Robert Johnson spent \$300 million to create the Charlotte Bobcats, only to struggle with tepid attendance, indifferent sponsors and poor play. But his big bet now may be starting to pay off*, FORBES, Jan. 9, 2006.

Rick Bonnell, *Network to Feature Bobcats, Region Teams; New TV Outlet will be only on Digital Cable*, CHARLOTTE OBSERVER (NC), Mar. 11, 2004.

John Consoli, *FSN, Versus Ink College Football Game Deal*, MEDIAWEEK, June 6, 2007.

Mike Cranston, *Bobcats hope TV, Naming Rights Boost Franchise*, ASSOCIATED PRESS, Apr. 8, 2008.

Anthony Crupi, *Court Reverses Field on NFL, Comcast Ruling*, MEDIAWEEK, Feb. 26, 2008.

Anthony Crupi, *ESPN Sports Another Cable Ratings Victory*, MEDIAWEEK, Dec. 4, 2007.

EchoStar pulls OLN after failing to show NHL games, ASSOCIATED PRESS, Oct. 20, 2005.

Jefferson George & Rick Bonnell, *Deals Widen Bobcats’ TV reach*, CHARLOTTE OBSERVER, Apr. 9, 2008.

Ted Hearn, *NFL Network, Comcast Locked at Scrimmage Line*, MULTICHANNEL NEWS, Oct. 18, 2008.

Sallie Hofmeister, *CBS Stations Agree to NFL Payout*, L.A. TIMES, May 30, 1998, D3.

Meg James & Sam Farmer, *'Monday Night' Headed to ESPN; Cable network, NFL agree on eight year, \$8.8 billion deal for Monday games beginning in 2006. NBC lands Sunday night games*, LOS ANGELES TIMES, Apr. 19, 2005.

Mike Reynolds, *Dish Sacks NFL Net*, MULTICHANNEL NEWS, Feb. 25, 2008.

Richard Sandomir, *A Network to Satisfy the Appetite of Baseball-Hungry Fans*, N.Y. TIMES, Oct. 2, 2008.

Andrew Shain, et. al, *Bobcats Shut Off Their TV Network; Citing Lack of Viewers, Team Pulls Plug on C-SET after a Year*, CHARLOTTE OBSERVER, Jun. 29, 2005.

Jon Show & John Ourand, *Comcast Combines Versus, Golf Channel Sales Efforts*, STREET & SMITH'S SPORTS BUSINESS JOURNAL, Jan. 26, 2009, page 03.

R. Thomas Umstead, *Super Fan Subscribers Get Access to NFL Games on Broadband Video*, MULTICHANNEL NEWS, Aug. 13, 2007.

Other Material

COMCAST CORP., 2008 ANNUAL REPORT (SEC FORM 10-K), Feb. 20, 2009.

Comcast Website, My Channel Lineup, available at
<http://www.comcast.com/Customers/Clu/ChannelLineup.ashx?print=1&CGID=5062>.

Einer Elhauge, Comments Regarding Hearings on Health Care and Competition Law and Policy—Statement for DOJ-FTC Hearing on GPOs—Antitrust Analysis of GPO Exclusionary Agreements, Sept. 26, 2003.

NBC Sports, NBC Sunday Night Football Schedule, Apr. 15, 2008, at
[http://nbcports.msnbc.com/id/24129494/](http://nbcsports.msnbc.com/id/24129494/).

APPENDIX 3: LEAGUE CITY DEFINITIONS

Table 5 examines Nielsen ratings data in "league" and "non-league" cities for two national professional sports leagues, the NFL and the NHL. In each case, the ratings are based on a universe of 56 Nielsen DMA markets. These markets have been classified as either a league city or a non-league city for each sport. Table A1 indicates which of the 56 DMAs are considered league cities. Note that any city in Table A1 that is not indicated as a league city for a particular sport is considered a non-league city for that sport. Also note that a DMA can have more than one team of the same sport, meaning that there are fewer league cities than there are teams. For example, New York City constitutes one DMA with two NFL teams (the Giants and the Jets) and three NHL teams (the Devils, Islanders, and Rangers).

TABLE A1: LEAGUE AND NON-LEAGUE CITY DEFINITIONS

	NFL Market?	NHL Market?
Albuquerque-Santa Fe		
Atlanta	Yes	Yes
Austin		
Baltimore	Yes	
Birmingham (Ann and Tusc)		
Boston (Manchester)	Yes	Yes
Buffalo	Yes	Yes
Charlotte	Yes	
Chicago	Yes	Yes
Cincinnati	Yes	
Cleveland-Akron (Canton)	Yes	
Columbus, OH		Yes
Dallas-Ft. Worth	Yes	Yes
Dayton		
Denver	Yes	Yes
Detroit	Yes	Yes
Ft. Myers-Naples		
Greensboro-H.Point-W.Salem		
Greenville-Spart-Ashevil-And		
Hartford & New Haven		
Houston	Yes	
Indianapolis	Yes	

Jacksonville	Yes	
Kansas City	Yes	
Knoxville		
Las Vegas		
Los Angeles		Yes
Louisville		
Memphis		
Miami-Ft. Lauderdale	Yes	Yes
Milwaukee	Yes	
Minneapolis-St. Paul	Yes	Yes
Nashville	Yes	Yes
New Orleans	Yes	
New York	Yes	Yes
Norfolk-Portsmouth-Newport News		
Oklahoma City		
Orlando-Daytona Beach-Melbourne		
Philadelphia	Yes	Yes
Phoenix (Prescott)	Yes	Yes
Pittsburgh	Yes	Yes
Portland, OR		
Providence-New Bedford		
Raleigh-Durham (Fayetteville)		Yes
Richmond-Petersburg		
Sacramento-Stokton-Modesto		
Salt Lake City		
San Antonio		
San Diego	Yes	
San Francisco-Oakland-San Jose	Yes	Yes
Seattle-Tacoma	Yes	
St. Louis	Yes	Yes
Tampa-St. Pete (Sarasota)	Yes	Yes
Tulsa		
Washington, DC (Hagerstown)	Yes	Yes
West Palm Beach-Ft. Pierce		

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
NFL Enterprises LLC,)	MB Docket No. 08-214
Complainant)	
v.)	File No. CSR-7876-P
Comcast Cable Communications, LLC,)	
Defendant)	
)	

To: Marlene H. Dortch, Secretary
Federal Communications Commission

Attn: Chief Administrative Law Judge Richard L. Sippel

CERTIFICATE OF SERVICE

I, Leah E. Pogoriler, certify that on this 6th day of March, 2009, I caused a true and correct copy of the attached Report of Dr. Hal J. Singer to be served via electronic mail upon:

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